

## CLAIMS

### **What is claimed is:**

1. An integrated circuit being operably disposed between a plurality of audio sources and a signal processing circuit, the integrated circuit comprising:
  - a magnetic field sensor;
  - a magnetic field threshold comparator and a magnetic field threshold value, the magnetic field threshold comparator being operably coupled to the magnetic field sensor and the magnetic field threshold value; and,
  - a gate being operably responsive to the magnetic field threshold comparator, the gate including a plurality of gate inputs and a gate output, the plurality of gate inputs being operably coupled to the plurality of audio sources, and the gate output being operably coupled to the signal processing circuit, wherein one of the plurality of audio sources is selected to be presented to the signal processing circuit in response to the magnetic field threshold comparator output.
2. The integrated circuit of Claim 1 wherein the magnetic field sensor has a power consumption of substantially 100  $\mu$ W or less.
3. The integrated circuit of Claim 1 wherein the magnetic field sensor is a lateral bipolar magnetotransistor.
4. The integrated circuit of Claim 1 wherein the magnetic field sensor is a split-drain MAGFET.
5. The integrated circuit of Claim 1 wherein the magnetic field sensor is a Hall effect sensor.
6. The integrated circuit of Claim 1 wherein the magnetic field sensor is a micro-electromechanical system (MEMS) device.
7. The integrated circuit of Claim 1 wherein the magnetic field sensor is an external telecoil.
8. The integrated circuit of Claim 1 further comprising a manual override.
9. The integrated circuit of Claim 8, wherein the manual override is operable to couple one or more of the plurality of audio sources to the signal processing circuit.

10. The integrated circuit of Claim 1 being operably coupled to a signal processing device selected from the group consisting of biasing, amplifying, filtering, and rectifying devices.

11. For an assisted-listening device having an integrated circuit based magnetic field sensor and gate selector, a method for facilitating listening comprising the steps of:

providing a magnetic field threshold level;

receiving a magnetic field input level;

comparing the magnetic field threshold level to the magnetic field input level; and, selecting one of the plurality of audio sources to be presented to a signal processing circuit in response to the comparison of the magnetic field threshold level and the magnetic field input level.

12. The method of Claim 11 further comprising:

providing a manual override to allow manual selection of one or more of the plurality of audio sources to be presented to the signal processing circuit.

13. The method of Claim 11 further comprising providing an integrated telecoil preamplifier operably coupled between the selected audio source and the gate.

14. An integrated circuit being operably connected between a plurality of audio sources and a signal processing circuit, the integrated circuit comprising:

a sensor for detecting an external magnetic field presence; and,

a gate being operably responsive to the sensor, the gate including a plurality of inputs and a gate output, the plurality of gate inputs being operably coupled to the plurality of audio sources, the gate output being at least one of the plurality of audio source signals to be presented to the signal processing circuit in response to the sensor detecting the presence of the external magnetic field.

15. The integrated circuit of Claim 14 further comprising:

a magnetic field threshold value; and,

a magnetic field threshold comparator being operably connected to the magnetic field threshold value, the sensor, and the gate, the magnetic field threshold

comparator for determining the presence of the magnetic field in excess of the magnetic field threshold value and providing an output to the gate responsive thereto.

16. The integrated circuit of Claim 14 wherein the external magnetic field presence is a magnetic B-field.

17. The integrated circuit of Claim 14 wherein the magnetic field sensor is a lateral bipolar magnetotransistor.

18. The integrated circuit of Claim 14 wherein the magnetic field sensor is a split-drain MAGFET.

19. The integrated circuit of Claim 14 wherein the magnetic field sensor is a Hall effect sensor.

20. The integrated circuit of Claim 4 wherein the magnetic field sensor is a micro-electromechanical system (MEMS) device.

21. The integrated circuit of Claim 14 wherein the magnetic field sensor is an external telecoil.

22. The integrated circuit of Claim 14 wherein the magnetic field sensor has a power consumption of substantially 100  $\mu$ W or less.

23. The integrated circuit of Claim 14 being operably coupled to a signal processing device selected from the group consisting of biasing, amplifying, filtering, and rectifying devices.

24. An integrated circuit comprising:  
a sensor for detecting an external magnetic field presence;  
a magnetic field threshold value; and,  
a magnetic field threshold comparator including a first input operably coupled to the magnetic field threshold value and a second input operably coupled to the sensor, the magnetic field threshold comparator further including an output being operably coupled to a signal processing circuit, the output comprising a first signal and a second signal, the output being determined in response to the comparison of the sensed external magnetic field and the magnetic field threshold value wherein the first signal is presented to the signal processing circuit when the magnetic field threshold value exceeds the sensed

external magnetic field and the second signal is presented to the signal processing circuit when the sensed external magnetic field exceeds the magnetic field threshold value.

25. The integrated circuit of Claim 24 wherein the external magnetic field presence is a magnetic B-field.

26. The integrated circuit of Claim 24 wherein the magnetic field sensor is a lateral bipolar magnetotransistor.

27. The integrated circuit of Claim 24 wherein the magnetic field sensor is a split-drain MAGFET.

28. The integrated circuit of Claim 24 wherein the magnetic field sensor is a Hall effect sensor.

29. The integrated circuit of Claim 24 wherein the magnetic field sensor is a micro-electromechanical system (MEMS) device.

30. The integrated circuit of Claim 24 wherein the magnetic field sensor is an external telecoil.

31. The integrated circuit of Claim 24 wherein the magnetic field sensor has a power consumption of substantially 100  $\mu$ W or less.

32. The integrated circuit of Claim 24 being operably coupled to a signal processing device selected from the group consisting of biasing, amplifying, filtering, and rectifying devices.